Building a Standards-based Data Warehouse

SIF-enabled Data Sharing

Topics

- Overview of Horry County Schools
- Goals and Objectives
- The Dynamic Data Warehouse Design
- Building the Dynamic Data Warehouse
- Current Initiatives
- Questions and Answers

Overview of Horry County Schools

Horry County Schools

- Coastal South Carolina
- Third largest district in South Carolina
- Serving over 39,000 students
- Nine attendance areas
- 52 schools
- Nearly 5,000 employees
- 7 schools named National Blue Ribbon Schools of Excellence by the US DOE
- Rural to suburban with ~ 53% free and reduced lunch

Applications and Data Sources

- Student Information System –PowerSchool
  *recent transition from SASI
- ERP – PeopleSoft
- Food Service - WinSNAP
- Special Education - Excent
- Library Management – Destiny
- Health – Health Office
- Email – Exchange

HCS Custom Applications

- Assessment – MAP, PACT, HSAP, SAT, EPASS, EOC
  Reporting Services – ROSE
- Homebound/Home-based Accounting – HOBO
- Progress Reporting – OPRA
- Attendance Area Address Checking – Streets
- Personnel Transfer Requests – TRaSI
- Personalized Learning Plans – PLP
- Online Course Registration – OCRA
- Field Trips, Medicaid billing, and many others

State Applications

- Student Unique Identifier System (SUNS)
- Textbook Management (Destiny)
- Individualized Graduation Plan (eIGP)

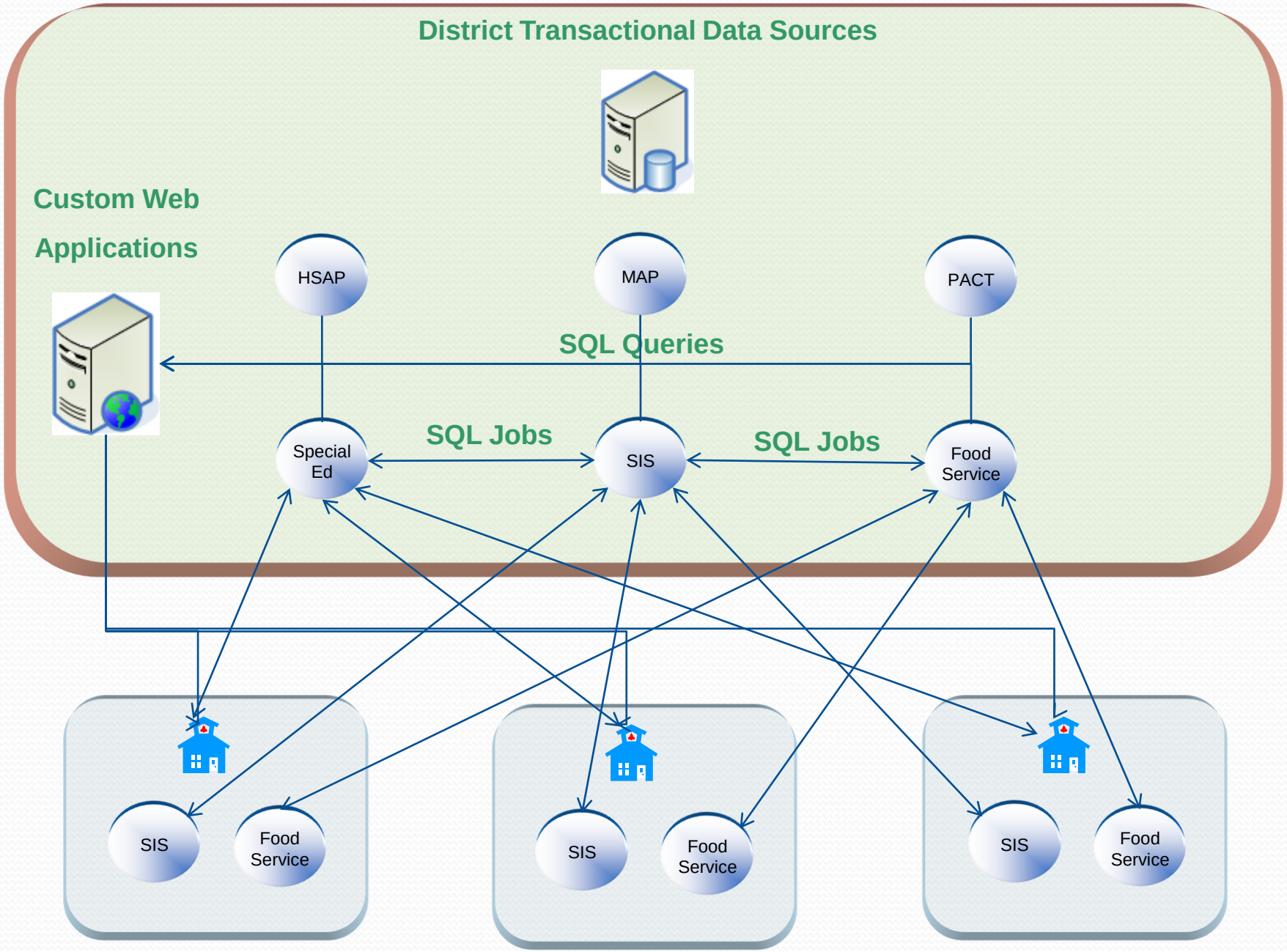
Other Hosted Applications

- Primary district website – Sharpschool
- Student E-Mail – Sharpschool
- Emergency Notification – Everbridge

Data Tech Support Staff

- 1 Coordinator – Special Projects and DBA
- 1 Coordinator – Special Projects and SIS
- 2 Programmer/Developers – ERP
- 2 Programmer/Developers – Web Applications and Data Design
- 1 Help Desk Tech – SIS Support

Starting Configuration



Motivation for change?

- Fragmented, Ad hoc design
  - Just-in-time development
  - Single purpose reporting
  - Complicated change process
  - Labor intensive
- Not optimized for reporting
- Not standards based
- Application dependent

Goals and Objectives

Goal

Use Data to:

- Facilitate individualized instruction
- Facilitate continuous improvement
  - Enable program evaluation and curriculum alignment
  - Evaluate the allocation of resources
    - Provide trend analysis and forecasting capability
    - Provide easy access to data

Objectives

- Improve data quality
  - Provide data quality feedback to source
- Combine data silos into an integrated data warehouse
- Streamline data sharing
  - Minimize duplication of effort
- Provide dynamic reporting from a data warehouse
  - Provide data analysis for program evaluation
  - Provide analysis of key indicators

What are the requirements?

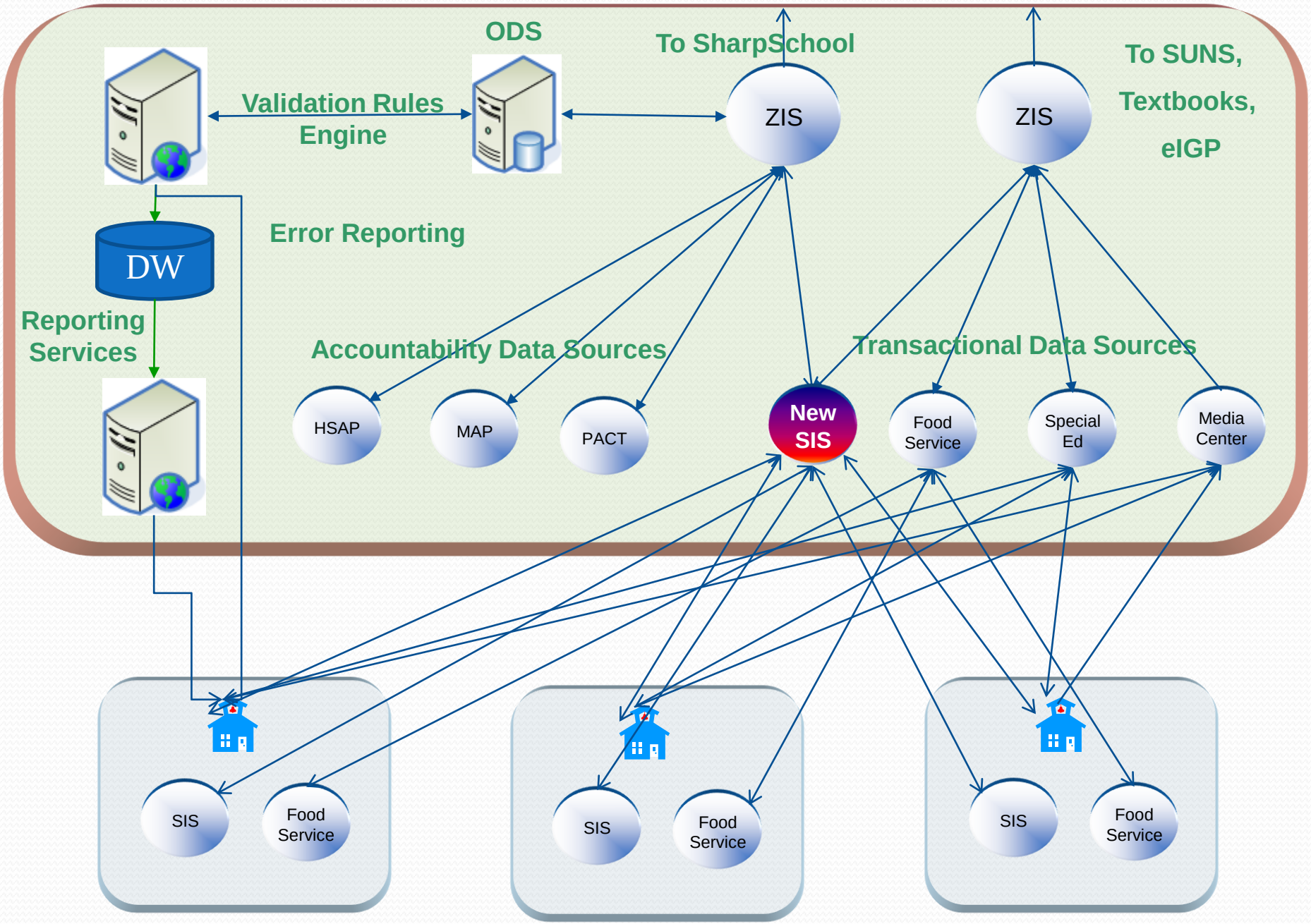
- Provide student/school/district information in real-time
- Provide means of comparing district measures with reported measures from other sources
- Eliminate manual data manipulation
- Complete within existing budgets
- Meet immediate needs

Strategies

- Use SIF model to:
  - Share data between district applications
  - Build a data warehouse
- Use a SIF universal agent (UA) to:
  - Connect to custom applications developed in-house and commercial applications which have no SIF agent
- Include SIF requirement in new software implementations
- Leverage Microsoft SQL Server Reporting Services for rapid development of dynamic reporting

The Design

Configuration Design Goal



Dynamic Data Warehouse

Building it – What we are doing and what it takes

Implementation Components

- SIF-Connect Server Zone Integration Server - ZIS
- SIF-Connect Universal Agent Suite
  - CPSI Data Extractor
  - Leverages Web Services
- Data Validation Rules Engine
- Data Validation Web Framework
- SIF-Connect Data Warehouse/Operational Data Store

Current Initiatives

- Fully implement Validation Rules Engine
- Expand Online Reporting Services
  - Expand available reports
  - Convert existing ad hoc reports
- Develop custom agents for in-house data stores
- Continue to populate DW with additional data sources (PCS, HR, Financials)
- Implement new SIS (PowerSchool)
- Upgrade to MSSQL Server 2008
- Upgrade from SIF 1.5r1 to SIF 2.0

Challenges

- Incomplete adherence to SIF standards
- Elements not provided in delivered agents
- Migrating to SIF 2.0
- Delivered application agents may publish but not subscribe
- Administrative tools
- Coordinating executions of full data synchronizations between applications
- Data inconsistencies become apparent

What it takes

- Patience
- Vision
- Commitment
- Standards
- Flexibility
- Migration path
- More patience

Features and Benefits

Features of this Implementation

- MSSQL based
- Based on the SIF Specs (XSD)
- Both Operational and Transactional data
- Tools support Dynamic Schema additions and modifications based on the SIF XSD and the Custom Object XML Schema
- SIF Certified Agents

Benefits of this Implementation

- Standards based
- Continuous data cleaning cycle
- Data-driven, modular design
- Software independence
- Rules based
- Real time data transfer – All the Data, All the Time

Return On Investment

- Understanding SAT results
- Providing teachers with better tools for assessing student performance
- Tracking drop-outs and graduation rates
- Evaluating program performance
- Minimizing dual data entry

Q & A

Contact Information:

Richard Nadeau rnadeau@horrycountyschools.net

Jeri Fawcett jfawcett@horrycountyschools.net